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ABSTRACT

The purpose of this study is to compare the English syntactic structures produced in spontaneous oral language and the receptive English syntactic and vocabulary skills of bilingual Spanish and Indian children and monolingual Anglo-Americans, all of whom qualify for Title I elementary schools (Grades 1-6). People in Action, the Northwestern Syntax Screening Test (NSST), and the Peabody Picture Vocabulary Test (PPVT) were used to compare the subjects on these skills. Significant results were found when using multivariate analysis of variance on the three dependent measures of syntactic and vocabulary performance on the three levels of language. Multivariate, along with univariate, analysis showed significant differences on these variables among grade levels. Bilingual Spanish and Indian children were less able to comprehend verbal information as shown through the PPVT, and to understand and produce English syntactic structures as determined by their NSST and Developmental Sentence Analysis Procedure performances, than their monolingual Anglo-American peers. It is concluded that educational programs should be varied to match the language performance of individual children rather than be based on group scores, and therefore, majority language instruction and modifications of the manner of presentation of verbal instruction are needed for bilingual students in Grades 1-6, as well as inclusion of syntax and vocabulary instruction in the curriculum at all grade levels. (MHP)

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Comparison of the Syntax and Vocabulary of Bilingual Spanish, Indian, and Monolingual Anglo-American Children

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There has been growing recognition that national-origin minority children are often unable to benefit fully from regular school programs where Standard English is the basis for instruction. The major weakness thought to undermine the educational achievement of minority children with linguistic backgrounds other than English has been ascribed to a language deficiency in Standard English. Several investigations have revealed a positive relationship between language performance and academic functioning (Kolers, 1972; Liberman, 1971; and Rosenthal and Resnick, 1974). In some areas of the United States, bilingual approaches have recently been instituted, but their effectiveness is yet to be conclusively determined.

In the meantime, educators are continuing to provide traditional instruction to children of differing linguistic backgrounds. Several practices appear to influence programs for minority children. In some cases where it is assumed that these children enter school with deficits in Standard English, individualized allowances are made and special help provided during the beginning school years. In other instances where children enter school speaking some English, it is too easily assumed that they speak and understand at a level comparable to their majority-background peers making special assistance unnecessary. For nearly all children of differing linguistic backgrounds, it is generally taken for granted that once they reach the upper elementary grades, they have become proficient in the language and are expected to read, write, and speak Standard English. In addition, they are expected to interpret instructions and explanations given by the teacher, not only in Standard English, but in a Standard English of considerable complexity.

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With occasional exceptions only, educational programs for children from language-minority backgrounds tend to parallel those provided children who speak the language of the majority. Similar sets of educational objectives comprise the school curriculum for all children. Similar instructional materials are produced by the major publishing houses. Similar training programs exist to prepare teachers. Finally, similar accrediting agencies and state guidelines continue to influence school curriculum. It may be said that this state of affairs persists more from lack of knowledge than any intended disregard of the problems of non-English speaking children. Information concerning the language

development of linguistically different children is needed to determine the extent of instructional modifications necessary so that they may effectively participate in educational systems.

Recent studies which have compared the English language development of bilingual and monolingual students have been limited in scope. Carrow (1957 and 1971) compared the linguistic skills of third graders and the comprehension capabilities of pre-schoolers. In both instances, the Mexican-American children's performance in English was inferior to that of monolingual English students. Natalicio and Natalicio (1971) found significant differences in the use of English plurals between native-Spanish-speaking and native-English-speaking children in grades three and ten. No significant differences were found, however, for grades one and two.

The written syntax of monolinguals and bilinguals in the intermediate and upper grades has been studied. Golub (1974) reported that although written syntax production did not differ significantly, there were significant differences in intermediate grade student knowledge of written syntax as measured by a written syntax test. Rodriques (1974) found no significant difference in oral and written syntax production of fourth and ninth grade bilinguals. These two studies may reflect more regarding performance on school-type task than they reveal regarding everyday language usage.

The above investigations, each of which has made important contributions to what may be termed a sparse area of research, have certain limitations. It is difficult to draw generalizations from data gathered in separate studies of various age and grade levels, to determine any developmental links. The inherent complexities of the language frequently restrict the variables selected for study and minimize the information that may be obtained. No large scale investigation of the spontaneous oral language of bilingual and monolingual children in grades one through six has been conducted. Finally, there is a conspicuous lack of information that would be useful to teachers in planning language instruction for minority children.

The purpose of this study is to compare the English syntactic structures produced in spontaneous oral language and receptive English syntactic and vocabulary skills of bilingual Spanish, Indian, and monolingual Anglo-Americans in grades one through six. Such information can become the basis for planning and implementing classroom instruction to meet the specific needs of national-origin minority children.

Procedures

Subjects

The subjects were randomly selected from grades one through six from five Title I elementary schools in the Southwestern section of the United States. Title I schools are identified as those schools in which the concentration of children from low income families is less than or equal to the district average income. These children comprised three separate groups--bilingual Spanish (N=92), bilingual Indian (N=92), and monolingual Anglo-American (N=96).

A bilingual classification was designated if school records showed the language of the home to be either Spanish or the Indian language corresponding to the subjects' tribal membership. Indian tribal membership represented in the study are Pima, Navajo, Hopi, and Yaqui. No consideration was given to how English had been learned nor to how long the subject had been familiar with the English language.

Exceptions to the random sampling occurred only if a potential subject qualified for special educational services because of exceptional intellectual functioning, sensory impairments, or severe emotional disturbances. No subject was selected whose age was more than 12 months different from the mean age for each grade level.

Data Collection

A standard procedure was followed to obtain a spontaneous oral language sample for each subject. Trained adults elicited the language samples from individual students in a private conversational setting in the school environment. The stimulus materials were sets of photographs entitled People in Action (Shaftel and Shaftel, 1970). The adults initially showed the stimulus materials and asked questions such as, "Tell me about this.", "What else?", "What happened next?", and "What would happen if?". Students were encouraged to initiate and continue conversational topics. Fifty complete sentences were collected for each subject. Each sample was taped and verbatim transcripts were prepared. These samples provided the basis for the syntactic analysis according to the Developmental Sentence Analysis Procedure (Lee and Koenigsknecht, 1974) described below.

The Northwestern Syntax Screening Test (NSST) (Lee, 1969) was administered in the standardized manner to measure subjects' receptive and expressive syntax skills. The NSST consists of two sets of 20 sentence pairs which include grammatical contrasts of increasing difficulty. Subjects chose pictures in response to stimulus sentences and selected and repeated sentences in response to stimulus pictures. Although the primary intent of the NSST is its use as a screening

instrument (Lee, 1977) the NSST was utilized in this study as a criterion-referenced measure of certain syntactic skills, morphological forms, function words, and word order.

The Peabody Picture Vocabulary Test Form A (PPVT) (Dunn, 1959) was administered to measure subjects' receptive vocabulary skills. Subjects' responses to stimulus words of increasing difficulty were assessed. The PPVT consists of a series of plates each with four pictures illustrating four vocabulary words. In the procedure the examiner presented the plates and orally presented stimulus words. Subjects responded by selecting the pictures which corresponded to the stimulus words.

Data Analysis

The Developmental Sentence Analysis Procedure (Lee and Koenigsknecht, 1974) was used to analyze and score subjects' spontaneous oral language samples. The sentences were scored by identifying the syntactic structures used in each sentence and assigning the weighted value to the grammatical structures based on a developmental order which had been devised by the authors hypothesizing a progressive sequence of grammatical growth. The overall internal consistency of the DSS as estimated by Cronbach's Coefficient Alpha and the Spearman-Brown formula was satisfactory with reliabilities of .71 and .73 respectively for a group of children ages 2-0 to 6-11 (Lee and Koenigsknecht, 1974). Both measures showed a progressive increase in reliability with increasing age of the subjects. Moreover, as age increased to 6-11, there was a corresponding increase in reliability coefficients for each grammatical category and a progressive increase in the grammatical load of the subjects' sentences. This procedure was considered useful for measuring the syntactic maturity of bilingual and monolingual students through the sixth grade since the scoring system has the capability of taking into account increases in the number and combinations of syntactic structures as well as the inclusion of those structures considered to develop later in children's spontaneous speech. "Developmental Sentence Analysis may be used with any clinical population to assess a child's incorporation of adult grammatical rules into his spontaneous speech..." (Lee and Koenigsknecht, 1974, p. xxi).

The eight syntactic categories analyzed in this procedure were: indefinite pronouns and noun modifiers, personal pronouns, main verbs, secondary verbs, negatives, conjunctions, interrogatives, and wh-questions. A mean Developmental Sentence Score (DSS) was derived for each subject by totaling weighted values for the fifty sentences and computing an average score per sentence.

The Northwestern Syntax Screening Test was scored according to standard procedures described in the test manuals. A score of 1 was given for each correct response. Total raw scores were analyzed for the

three language groups. The Peabody Picture Vocabulary was scored according to standard procedure. Age equivalents established by the PPVT were recorded and used in the data analysis.

Results*

A multivariate analysis of variance on the three dependent measures of syntactic and vocabulary performance (DSS, NSST, and PPVT) with three levels of language (bilingual Spanish, bilingual Indian, and monolingual Anglo-American) and six levels of grades yielded significant results.

The hypothesis that bilingual Spanish, Indian, and monolingual Anglo-American subjects scored significantly different on the three language measures was tested. Spanish, Indian, and Anglo-American mean scores were significantly different on the three language measures taken across grade levels, Rao's $F(6,520) = 16.9, p < .0001$. The hypothesis that bilingual Spanish, Indian, and monolingual Anglo-American scored significantly different among grade levels was tested. There was a significant difference among grades one through six on the three dependent measures, Rao's $F(15,718) = 11.5$, $p < .0001$. Table 1 shows the summary data for these results.

A univariate analysis was performed to determine significant differences between language groups for each language measure. The analysis revealed that mean scores for the Anglo-American group were significantly higher $p < .0001$ than those for the Indian group on each of the three measures--DSS $F(1,262) = 34.2$, NSST $F(1,262) = 26.6$, PPVT $F(1,262) = 50.11$. The mean scores for the Anglo-American group were significantly higher than those for the Spanish group on the NSST, $F(1,262) = 29.6$, $p < .0001$ and the PPVT, $F(1,262) = 4.6$, $p < .03$. Differences between the Anglo-American and Spanish groups were not significant at the .05 level on the DSS, $F(1,262) = 3.1$, $p < .08$.

A univariate analysis was performed to determine significant differences among grade levels for each of the three dependent variables. Significant univariate F scores $p < .0001$ were obtained for DSS $F(5,262) = 8.4$, NSST $F(5,262) = 22.2$, and PPVT $F(5,262) = 15.6$, indicating significant differences among grade levels for each measure.

The interaction between grade level and language was significant among the three language groups on the three dependent measures, Rao's $F(30,764) = 3.5$, $p < .0001$. The mean difference between Spanish and

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*The computer program "Multivariance," distributed by National Educational Resources, Inc., was used to analyze the total scores for each measure discussed in this section.

TABLE 1

Multivariate Analysis of Variance
for Language Groups by Grade
on Three Language Measures
DSS, NSST, and PPVT

Source of Variance	df	Mean Products*			Rao's	p
Language	6, 520	5384.98			16.86	.0001
		1954.70	1527.39			
		674.40	250.03	84.49		
Grade	15, 718	3104.31			11.50	.0001
		1716.21	1860.29			
		306.97	246.36	39.16		
Interaction	30, 764	104.26			3.52	.0001
		50.11	693.05			
		--.51	59.21	14.27		
Error		199.33				
		13.81	83.68			
		4.40	3.75	4.63		

*Format of mean products matrix is

	PPVT	NSST	DSS
PPVT	**		
NSST	**	**	
DSS	**	**	**

Anglo-American groups on the DSS increased significantly and monotonically between the third and fifth grades but was insignificant at the first, fifth and sixth grades largely as an effect of the Spanish grade four data. The mean difference between the Indian and Anglo-American groups on the DSS changed non-monotonically with the peak difference occurring in the third and fourth grades. The mean difference on the DSS changed non-monotonically between the Spanish and Indian groups. Only at the fourth grade level did the Indian group score higher than the Spanish group.

Table 2 reports the mean scores obtained for each of the three language groups on each measure for the six grade levels. This information is expanded in Figures 1, 2 and 3, which graph the mean scores for the DSS, NSST, and the PPVT.

Mean scores for each of the eight grammatical categories used in the DSS were analyzed for each language group to determine significant differences between groups in the production of grammatical structures. A multivariate analysis of variance disclosed a significant difference among the three groups, Rao's $F(20,518) = 4.8$, $p < .01$; and among the six grades, $F(50,1184) = 4.6$, $p < .01$. A univariate analysis showed significant differences for three of the eight grammatical categories. Mean scores were significantly different at the .01 level for each language group for indefinite pronouns or noun modifiers, $F(2,268) = 6.3$, personal pronouns, $F(2,268) = 10.0$, and conjunctions, $F(2,268) = 7.1$. Table 3 reports these scores at each grade level.

Discussion

This study was conducted to describe English language performance of a group of bilingual Spanish, Indian, and monolingual Anglo-American students. Significant differences were found between the bilingual Indian and monolingual Anglo-American children on the three language measures DSS, NSST, and PPVT and between the bilingual Spanish and monolingual Anglo-American on two language measures, NSST and PPVT.

Bilingual Spanish and Indian children are less able than monolingual Anglo-American children to comprehend verbal information to the degree that comprehension of verbal information is related to receptive vocabulary performance on the Peabody Picture Vocabulary Test. Bilingual Spanish and Indian children are less able than their monolingual peers to understand and produce English syntactic structures to the degree that the understanding and production of syntactic structures is related to performance on the Northwestern Syntax Screening Test and to oral language samples scored by the Developmental Sentence Analysis Procedure. The appropriateness of the verbal instructions, directions, and explanations provided by teachers and textbooks geared to the vocabulary and syntactic level of majority background students may be suspect for children with different linguistic backgrounds.

TABLE 2

Developmental Sentence Score, Peabody Picture Vocabulary Test, and Northwestern Syntax Screening Test Means for Spanish, Indian, and Anglo-American Children

	Spanish				Indian				Anglo-American			
Grade	DSS Score	PPVT Age* Score	NSST Raw** Score	N=	DSS Score	PPVT Age* Score	NSST Raw** Score	N=	DSS Score	PPVT Age* Score	NSST Raw** Score	N=
1	6.5	7-3	64.3	16	4.1	5-5	56.1	22	5.8	7-1	67.0	21
2	5.8	8-1	57.7	15	5.5	5-9	59.5	15	6.6	8-7	72.3	16
3	7.0	8-1	71.2	15	4.6	6-3	65.6	18	8.0	8-7	69.6	16
4	4.6	9-2	43.7	14	5.6	7-10	71.5	11	8.4	10-8	68.0	12
5	8.5	10-2	72.9	16	6.7	8-3	71.0	12	7.9	11-0	75.6	16
6	7.8	10-7	75.8	16	7.1	8-5	72.9	14	7.5	12-9	78.9	15
				—				—				—
Total N Per Group				92				92				96

*Age score is reported in years and months
**Total raw score possible is 80

TABLE 3

Grammatic Feature Mean Score for Each Language Group at Each Grade Level

Grammatic Feature	Indefinite Pronoun or Noun Modifier *			Personal Pronoun *			Main Verb			Secondary Verb		
Language Group	BLS	BLI	MAA	BLS	BLI	MAA	BLS	BLI	MAA	BLS	BLI	MAA
Grade												
1	6.5	5.3	4.6	15.9	10.4	12.0	17.3	16.7	17.0	4.1	2.4	3.5
2	6.8	4.9	7.9	13.1	14.1	18.1	14.3	17.5	15.5	3.9	6.5	4.3
3	5.8	4.2	6.7	16.5	10.4	19.8	18.1	15.3	21.9	4.6	1.4	5.8
4	8.2	3.5	8.1	15.2	11.9	19.1	9.7	13.8	17.9	2.1	2.3	6.3
5	10.4	6.4	13.0	20.1	10.9	16.6	14.8	17.5	15.4	7.3	5.3	8.6
6	9.4	6.7	8.9	16.7	16.3	16.9	17.6	15.7	17.2	6.8	5.9	5.3

*Significant at .01 level

BLS = Spanish N = 92
BLI = Indian N = 92
MAA = Anglo-American N = 96

TABLE 3 (continued)

Grammatic Feature	Negative			Conjunction *			Interrogative Reversal			WH-Questions		
Language Group	BLS	BLI	MAA	BLS	BLI	MAA	BLS	BLI	MAA	BLS	BLI	MAA
Grade												
1	3.9	1.8	2.3	6.7	4.0	3.0	.5	.9	.2	7.7	7.0	8.0
2	2.2	4.4	3.1	6.2	3.7	4.9	.0	1.2	.6	7.1	7.2	7.5
3	2.0	2.5	2.5	8.0	3.1	5.5	.1	.6	.5	8.4	8.6	8.9
4	.0	1.6	3.2	4.3	3.7	8.1	.1	.1	.5	8.7	7.3	8.5
5	5.2	2.1	5.1	10.1	4.4	9.7	.2	.5	4.1	8.7	9.2	8.1
6	4.6	5.2	3.2	9.4	4.9	4.9	.9	.3	.3	7.1	8.1	8.2

*Significant at .01 level

BLS = Spanish N = 92
BLI = Indian N = 92
MAA = Anglo-American N = 96

The mean DSS and NSST scores obtained by bilingual Spanish fourth graders deviated noticeably from the general trend of the data. No conditions or variables that may have influenced that group's performance are known to the investigator at this time. Caution is advised in the interpretation of that group's data, and hence also in the interpretation of the statistically significant overall difference found between the Anglo-American and bilingual Spanish groups on the NSST. The results of the study suggest, nonetheless, that everyday exposure to the English language in itself may not be sufficient to enable bilingual Indian and Spanish students to acquire the syntactic and vocabulary skills equivalent to their majority background peers that would close the gap. This data can be utilized to support the need for English language instruction and modifications of the manner of presentation of verbal instruction for bilingual Spanish and Indian students in grades one through six.

There is a wide variation in children's language performance within each group. Educational programs should be varied to match the language performance of individual children rather than be based on group scores.

Implications and Suggestions for Instruction

Modification in the manner of presentation of verbal instruction, as well as the inclusion of syntax and vocabulary instruction in curriculum at all grade levels, is called for to enable students of different linguistic backgrounds to effectively participate in, and benefit fully from our educational system.

Students' vocabulary level may be taken into account by teachers presenting concepts on a level that matches students' present vocabulary level, or by teachers directly teaching new vocabulary in conjunction with new learning materials. Vocabulary used in textbooks can be previewed so that specific instruction can be directed at teaching the meanings of those words which are identified as potentially troublesome. Vocabulary instruction, combined with instruction in reading and other content areas can serve the dual purpose of increasing students' English vocabulary skills and enhancing students' comprehension and learning in other academic areas.

Oral practice in the use of English can be both formally included in the school curriculum with direct instruction emphasizing the use of those structures which cause particular problems and informally included by teachers continuously expanding children's language and providing specific models for conventional usage in spontaneous speech. In either situation, the teachers' role as the creator of communication situations and events that provide practice in the use of the English language is essential.

Subtle and overt behaviors and attitudes displayed towards both the native language and Standard English indicate values held by the educational community, which in turn influence children's language performance. Children who learn that their native language is not something to be ashamed of, and that Standard English is worth learning, may attain proficiency in both languages and become successful language code switchers. The versatility thus achieved allows minority background children to use not only their native language, but Standard English as well, to enjoy the economic and educational opportunities and engage in the exchange of public information, upon which functioning in our society depends.

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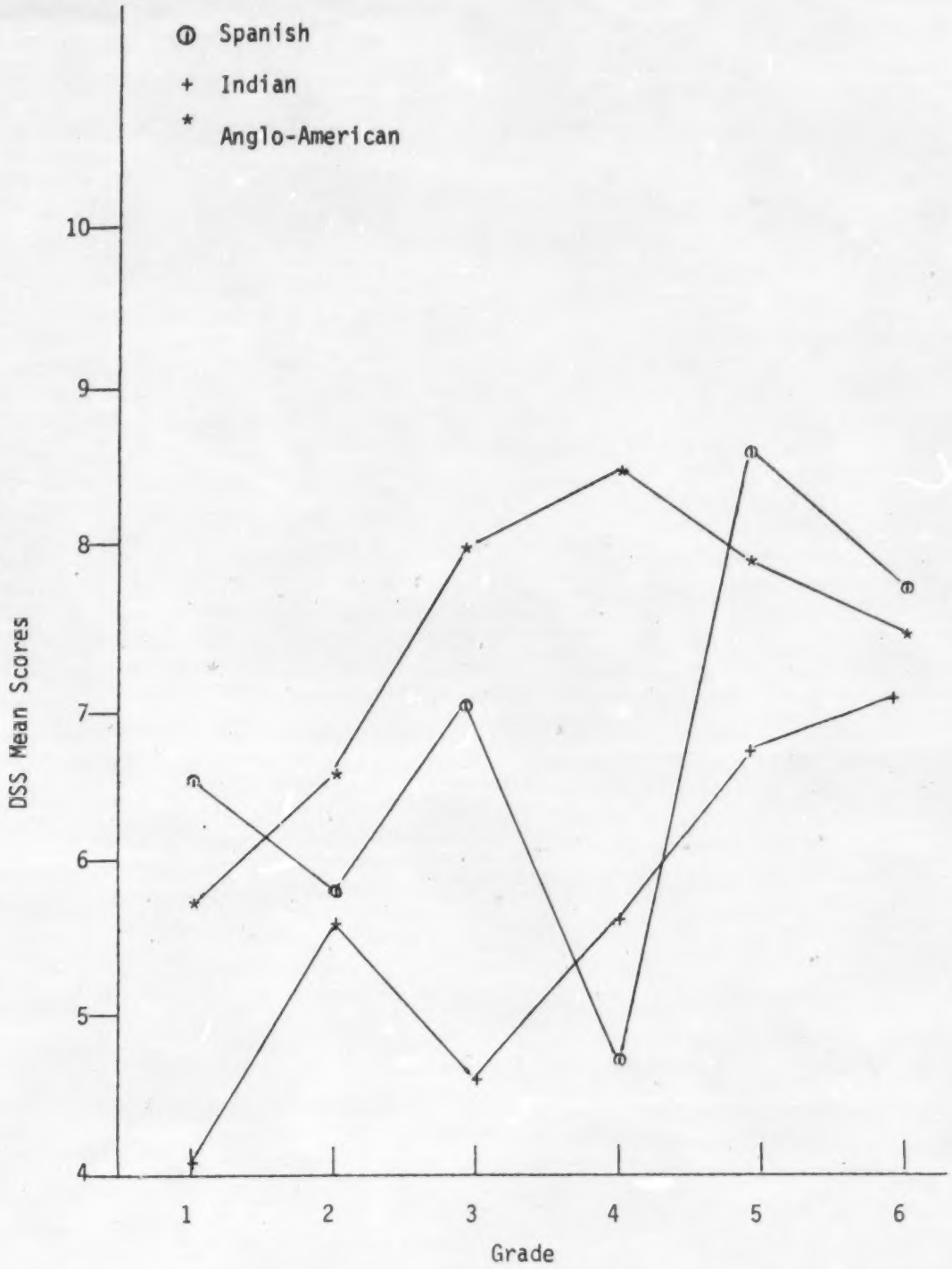
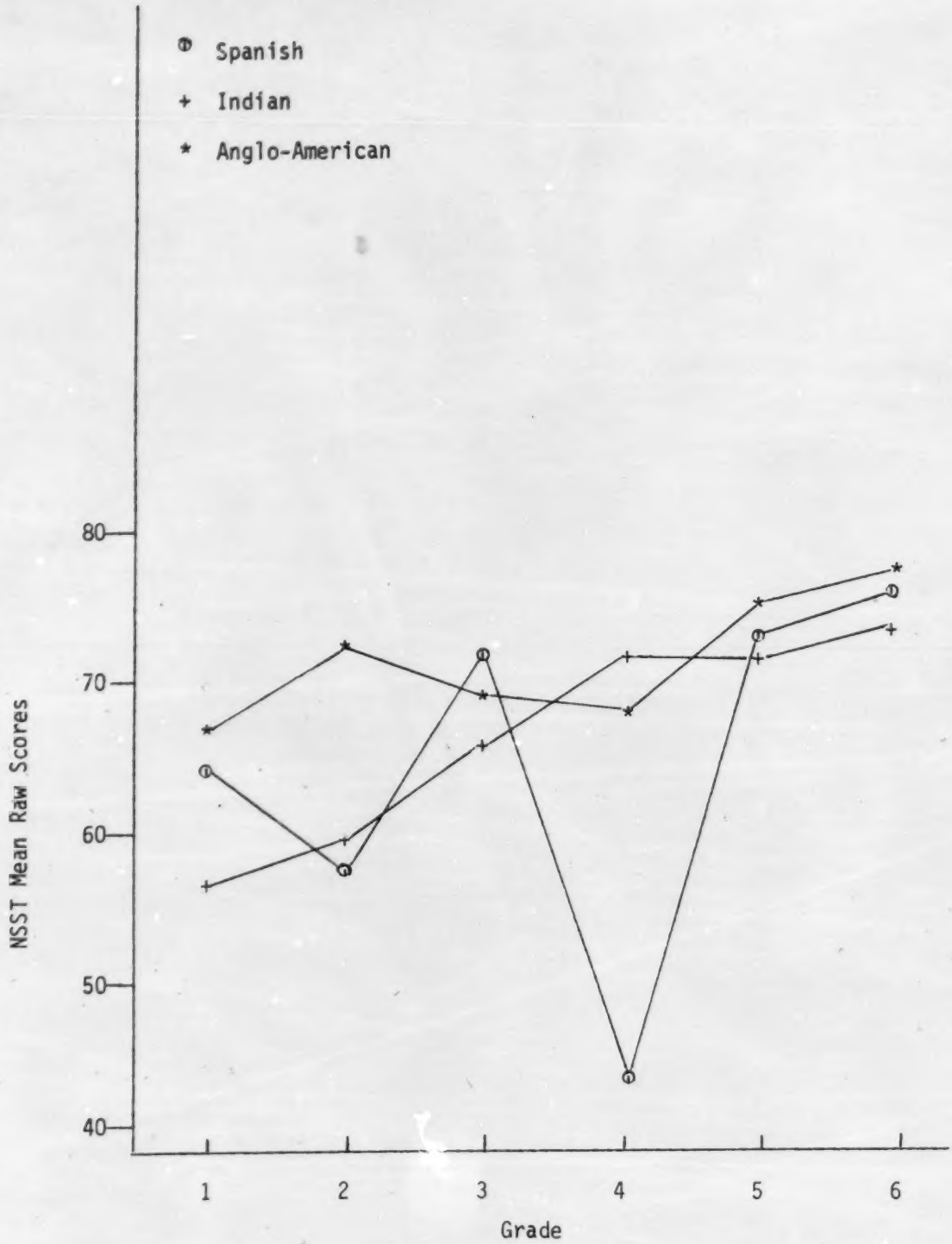


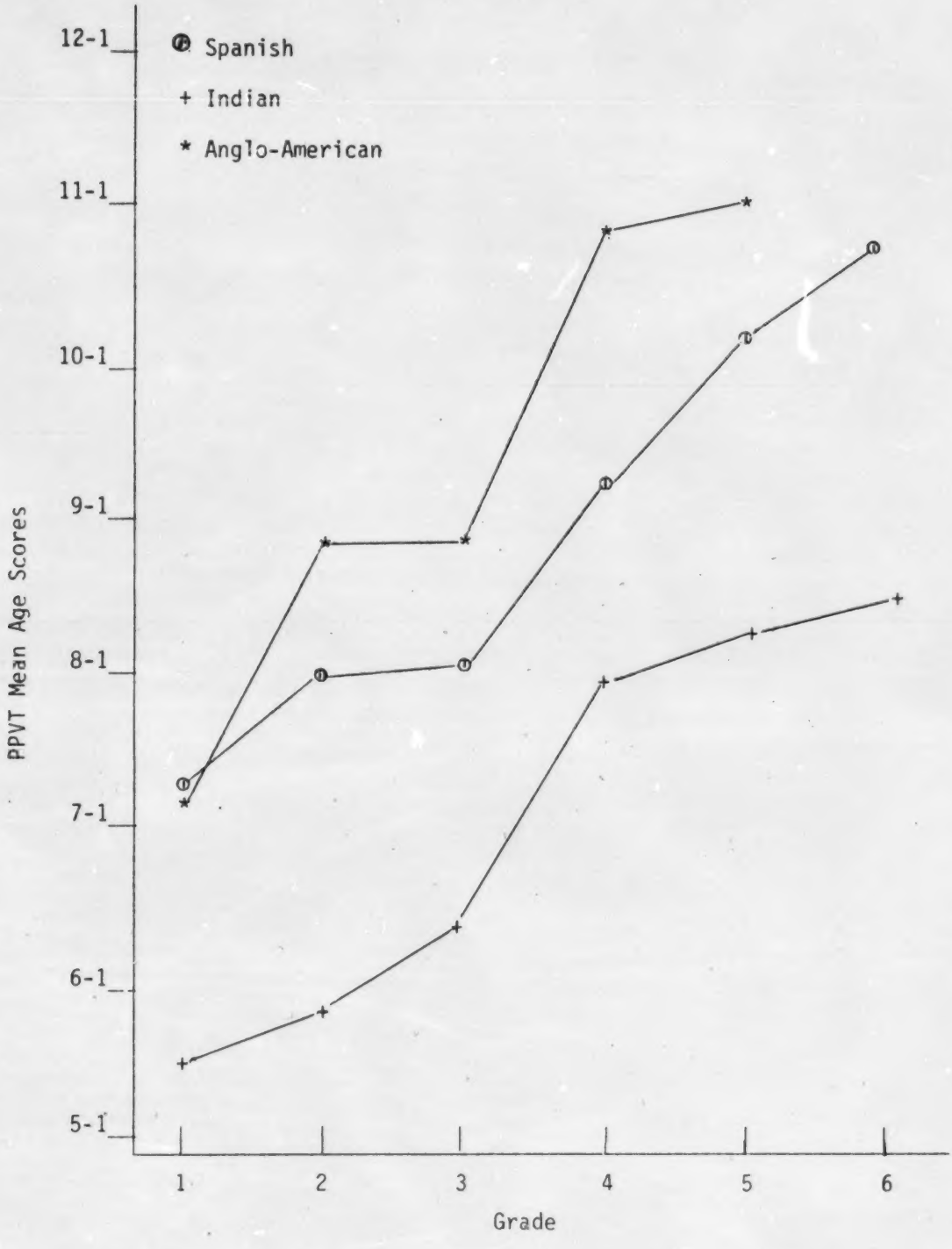
Developmental Sentence Score, Means for Spanish Indian, and Anglo-American Children Grades 1-6

FIGURE 1



Northwestern Syntax
Screening Test Mean Raw Scores
for Spanish, Indian and
Anglo-American Children Grades 1-6

FIGURE 2



Peabody Picture Vocabulary Test Mean Age Scores For
Spanish, Indian, and Anglo-American Children - Grades 1-6

Figure 3